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| 09/394,647      | 09/08/1999  | JEAN-PIERRE GAUTIER  | 2988-0651           | 4586             |

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NEW YORK, NY 100362711

EXAMINER

SODERQUIST, ARLEN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1743

DATE MAILED: 06/03/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/394,647

Applicant(s)  
Gautier et al.

Examiner  
Arlen Soderquist

Art Unit  
1743



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on May 8, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 1, 3-10, and 12-21 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 8, 2003 has been entered.

2. Claims 15 and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 15 which depends from claim 2 the scope goes beyond the single dye to which claim 2 is limited. In claim 18 which depends from claim 11, the scope goes beyond the single dye to which claim 11 is limited.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 7-9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinman. In the patent Steinman teaches an indicator solution having a dihydroxy complexometric dye, a masking agent, a stabilizer, an alkaline buffer and a chelating agent and a method for making the indicator solution. Column 4, lines 27-51 teach several azo dyes as the dihydroxy complexometric dye. Column 6 line 60 to column 7 line 56 teach various complexing/masking agents and several buffers that are usable in the composition. Examples 1-3 show several compositions which anticipate the above claims.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1, 3-10, 12-17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann or Knechtel in view of Hutchings.

In the paper Hofmann presents a comparison of spectrophotometric methods for measuring chlorine dioxide in drinking water. The recognition that chlorine disinfection of drinking water may not be effective in controlling such as *Cryptosporidium* may lead to the greater use of stronger alternative disinfectants, such as chlorine dioxide. Typical chlorine dioxide residual concentration requirements for disinfection may extend to less than  $0.1 \text{ mg L}^{-1}$ , thus requiring very good quantitation methods for optimal process control. Traditional methods have been cumbersome and sometimes inaccurate. This study examined three spectrophotometric methods for measuring chlorine dioxide in the  $<0.1 \text{ mg L}^{-1}$  to  $2 \text{ mg L}^{-1}$  range, using acid chrome violet K (ACVK), lissamine green B, and amaranth reagents (both ACVK and amaranth are azo dyes). Figure 2 gives specifics about the each of the reagents including the buffers used. Each methods was assessed using both laboratory reagent water and various natural waters to identify the respective linear range, method precision, and the possible interference from natural color due to aqueous organic matter. Interferences arising from the presence of chlorine, chloramines, chlorite, chlorate, and permanganate were also evaluated, along with potential need to correct for temperature changes. Page 768 in the second to last paragraph teaches the presence of ammonia in the buffer specified for the methods used in the study which was expected to react with chlorine to form chloramines (also see page 762, first and second full paragraphs of column 2). Hofmann does not teach the presence of a borate buffer.

In the paper Knechtel teaches the determination of chlorine dioxide in sewage effluents. The decrease in absorbance at 550 nm of Acid Chrome Violet K (ACVK) allows the direct spectrophotometric determination of  $\text{ClO}_2$  in sewage treatment plant effluent samples. Centrifugation is employed to remove suspended solids. In a  $\text{NH}_4\text{Cl-NH}_3$  buffer of (pH 8.1-8.4), no interference from active Cl, hypochlorites, chlorites, chloramines, or nitrites was observed. The results obtained using the ACVK technique were verified with electron spin resonance spectrometry. Attached to the paper are pages from the Aldrich Chemical catalog and an STN search in the registry file of Chemical Abstracts. The first two structures correspond to Acid Chrome Violet K and are azo compounds. The third structure is a structure that was apparently erroneously identified as Acid Chrome Violet K in the Masschelein reference of record. From these structures and the associated names, it is clear that Acid Chrome Violet K is an azo-dye. Knechtel does not teach the presence of a borate buffer.

In the patent Hutchings teaches aqueous compositions containing a colorant and an alkali metal halogenite. Aqueous cleaner compositions containing an alkali metal halogenite, for example,  $\text{NaClO}_2$ ; a stabilizable colorant; and a stabilizing amount of a stabilizer compound selected from the group consisting of alkali metal carbonates, borates and mixtures thereof. The preferred embodiment further includes an anionic or anionic fluorocarbon surfactant. In the background Hutchings teaches that conversion of an alkali metal halogenite such as sodium chlorite into chlorine dioxide is known to occur at a pH of less than 9.0. When this happens coloring agents used in the cleansers fade creating problems associated with the lack of color. Column 4 lines 1-12 teach several dyes including azo-dyes that are known to be affected by this. The examples show several situations in which the production of chlorine dioxide is prevented by the use of a borate buffer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the borate buffer Hutchings into the Hofmann or Knechtel reagent and method because of its known ability to stop the conversion of a compound such as sodium chlorite into chlorine dioxide which would have been expected to give incorrect results. Concentrations and methods of preparation would have been results effective variables that the

Court has held to be within the skill of one of ordinary skill in the art (*In re Boesch*, 205 USPQ 215 (CCPA 1980)).

7. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The art of record does not teach or fairly suggest the use of Evans blue in a reagent or method for measuring chlorine dioxide.

8. Claim 11 is allowed.

9. Applicant's arguments filed May 8, 2002 have been fully considered but they are not persuasive. In response to applicant's argument that the anticipation by Steinman is not met because the Steinman dye is a dihydroxyarylaazo compound which has a different structure than the two specifically claimed dyes applicant is directed to claim 1 which only requires the dye to be an azo dye. This is clearly met by even the compound type that applicant has called the Steinman dye since the Steinman dye is an azo dye. It is noted that the features upon which applicant relies (i.e., the dyes that are listed as advantageously chosen on page 5, lines 12-15 or the masking agents given as examples on page 6, lines 1-5) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In particular the rejected claims are open language and the sections of pages 5-6 referred to in applicant's previous response do not limit the dyes and masking agents, but simply list either the preferred dyes or examples of masking agents. Additionally the claims do not list any intended use for the masking agents. Thus the claims are not limited and it is proper to hold the functionality as inherent when the regular definition of each term is met by the compositions of the reference. It then becomes applicant's burden to show that the compositions do not function for the intended purpose. If applicant wishes for the examiner to read the preferred dyes and/or the exemplified masking agents as the bounds of the rejected claims, then claim 1 should contain the specific dyes rather than broad terminology. In addition, a recitation of the intended use of the claimed invention -- the claimed property of the azo dye in the presence of chlorine dioxide -- must result in a structural difference between the claimed

invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). An example of what applicant appears to be arguing is that if applicant discovers that a composition equivalent to a lemon/lime flavored soda is capable of removing pesticide traces from fruits, that applicant should be entitled to claim a composition which is anticipated by the composition of a commercial product. This is clearly not proper.

Additionally, applicant is directed to several newly cited references for examples of compounds that have been used as masking agents for chlorine in analysis of oxychlorides: DMSO (Imaizumi); sulfamic acid (Imaizumi); oxalate (Hollowell, Imaizumi); malonate (Imaizumi); thioacetamide (Imaizumi); and monoethylamine (Kerenyi, Lepeitre). These examples show that a wide range of compounds can be used to mask the effects of chlorine and would point to at least one or more of the compounds of Steinman as capable of functioning as a masking agent for chlorine.

Relative to the obviousness rejection, Hofmann only suggests that amaranth not be used in the presence of permanganate. This is not a teaching that it should not be used. If one looks at the paragraph bridging pages 761-762 it is clear that the prior literature teaches that of the three amaranth has the lowest detection limit with a range having a maximum equal to that of ACVK. In the paragraphs which follow Hofmann teaches the purposes of the testing which was conducted and reported in the paper. For each method tested the linear response curves were all good and the methods deemed acceptable. Figures 9-11 showed that all of the methods were affected by temperature. Figures 12 and 14 show that both amaranth and ACVK are affected by permanganate. The paragraph pointed out by applicant does teach that the amaranth method should be avoided when permanganate is present and also teaches that interference from the manganese dioxide that is the end product when permanganate is used as the oxidizing agent can be removed by filtration. This does not teach away from using the amaranth method when permanganate is not present. In the summary and conclusions section all three methods tested

are characterized as improvements over the prior methods with linear ranges broad enough to capture the chlorine dioxide concentrations most likely encountered in practice. In the final paragraph of the section (page 773) each of the methods are characterized as "excellent candidates for on-line analytical applications". While each has situations in which another method might be better as the detection reagent none of the reagents are considered to be unsuitable for use and thus there is not a teaching away as applicant has argued. Relative to the combination of Hutchings with the primary references applicant is directed to that fact that one of skill in the art would expect other oxychloride anions to be present in the water samples (see the interferants tested for by Hofmann and Knechtel). It is clear that chlorite,  $\text{ClO}_2^-$ , is one of these. The Hutchings reference clearly teaches that at pH of less than about 9 there is sufficient acid present to cause chlorite to be converted to chlorine dioxide. Thus at the pH that is being used to measure the concentration of chlorine dioxide by both Hofmann and Knechtel, one of skill in the art would have recognized that chlorite ion could be converted into chlorine dioxide which would interfere with the measurement accuracy. The dyes used by Hutchings cover a wide variety including azo dyes. All of these dyes are shown to be affected by the chlorine dioxide produced. From the examples one would understand that the amount of borax or borate used would be an amount sufficient to buffer the solution. Thus the borate buffer is preventing the production of chlorine dioxide. This can be seen particularly in example 8 of Hutchings in which the concentration of borate is varied and chlorine dioxide is formed in those compositions having less than 0.15 wt. % concentration. Thus one of ordinary skill in the art would have recognized that the borate buffer would prevent the conversion of chlorite and any interference thereby. This would certainly provide motivation for a borate buffer in the assay method. In particular the Hutchings reference is pertinent to the rejection because it provides information on the reaction that chlorine dioxide can undergo at different pH values which one of ordinary skill in the art would have recognized as important to the functioning of the Hofmann and Knechtel compositions and methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The



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examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Numbers for faxing official papers are 703-872-9310 (before finals), 703-872-9311 (after-final), 703-305-7718, 703-305-5408 and 703-305-5433. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in cursive script, reading "Arlen Soderquist".

June 2, 2003

ARLEN SODERQUIST  
PRIMARY EXAMINER